

## REMARKS

No amendment is made in response to the outstanding Final Office Action mailed on July 10, 2008. The Examiner's reconsideration is respectfully requested in view of the following remarks.

Claims 1-16 are pending in the present application. Claims 11-15 have been previously withdrawn in response to a Restriction Requirement.

### **Claim Rejections Under 35 U.S.C. §103**

Claims 1-10 and 16 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 6,348,298 ("Sakurai") in view of U.S. Patent Application Publication No. 2004/0048200 ("Ishibashi") or U.S. Patent No. 4,749,727 ("Tsuchiya").

In order for an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996). See MPEP 2143.

Establishing a prima facie case of obviousness requires that all elements of the invention be disclosed in the prior art. *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970). Further, even assuming that all elements of an invention are disclosed in the prior art, an Examiner cannot establish obviousness by locating references that describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would have impelled one skilled in the art to do what the patent applicant has done. *Ex parte Levengood*, 28 U.S.P.Q.

1300 (Bd. Pat. App. Int. 1993). The references, when viewed by themselves and not in retrospect, must suggest the invention. *In re Skill*, 187 U.S.P.Q. 481 (C.C.P.A. 1975).

Claims 1 and 16 are independent claims. Claims 2-10 are dependent directly or indirectly from Claim 1.

The independent Claims 1 and 16 include, *inter alia*, the following limitation:

“0.1 to 2wt% of 3-acryloxypropyltrimethoxysilane as a lower layer silane hardener” and  
“a coated film of the photosensitive resin composition is patternable by double layer pattern formation using a slit mask”

As above, the claimed invention is drawn to a photosensitive resin composition for a color filter, and includes *0.1 to 2wt% of 3-acryloxypropyltrimethoxysilane as a lower layer silane hardener*, to thereby form a pattenable coated film by a double layer structure. More specifically, the double layer structure is formed by differentiating the hardness between the upper layer part and the lower layer part and thus causing a difference in their soluble properties. Further, if the content of this lower layer hardener is below 0.1wt%, pattern break-up occurs due to a low hardness of the lower layer. If the content exceeds 2wt%, residues remain because of a low developing rate, as disclosed in lines 3-8 on page 16 of this application. That is, within the claimed content range, a double-layer structure is established through formation of a lower layer hardness part. In order to support this argument, Applicants represent further experimental data on page 9 of this paper.

As can be seen from the materials of page 9, when the *3-acryloxypropyltrimethoxysilane (as a lower layer silane hardener)* falls within the claimed range (i.e., 0.1 to 2wt%), a double layered structure and thus a slit pattern is formed. Accordingly, Applicants respectfully submit that the claimed material as a lower layer silane hardener and its specified contents are critical to formation of a double-layer film structure.

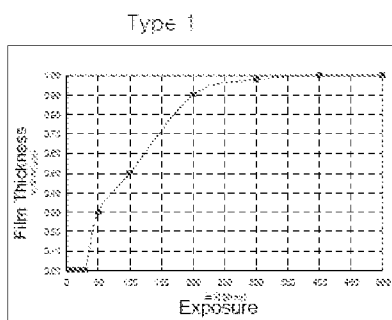
Further, the claimed composition provides a high sensitivity and transfective structure. That is, as shown in Fig. 4 of this application, an intensity of 1.0 means that the transmitted exposure energy is 100 mJ when the exposure energy is 100 mJ, and an intensity of 0.1 means that the transmitted exposure

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Response dated: November 10, 2008  
Reply to Final Office Action of: July 10, 2008

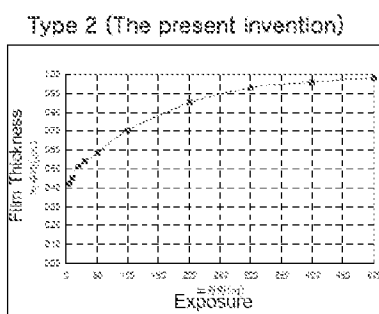
energy is 10 mJ when the exposure energy is 100 mJ. Thus, very high sensitivity characteristics can be achieved.

# Developing characteristics according to amount ranges of a lower layer hardness

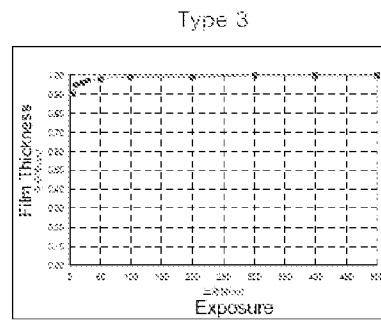
Type	Lower layer hardness	Photoinitiator	Film thickness after developing according to the exposure energy (μm) (Developing time, 100sec)		
	3-acryloxypropyl-trimethoxysilane (Shin Etsu)	Irgacure389 (Shiba Specialty Chemical)	20mj/cm <sup>2</sup>	100mj/cm <sup>2</sup>	200mj/cm <sup>2</sup>
1	0.95	1	0 μm	0.5 μm	1.0 μm
2	1.00	1	0.4 μm	0.7 μm	1.0 μm
3	2.20	1	0.9 μm	1.0 μm	1.0 μm



The pattern is not formed in the exposure energy of 50mj/cm<sup>2</sup> or less.

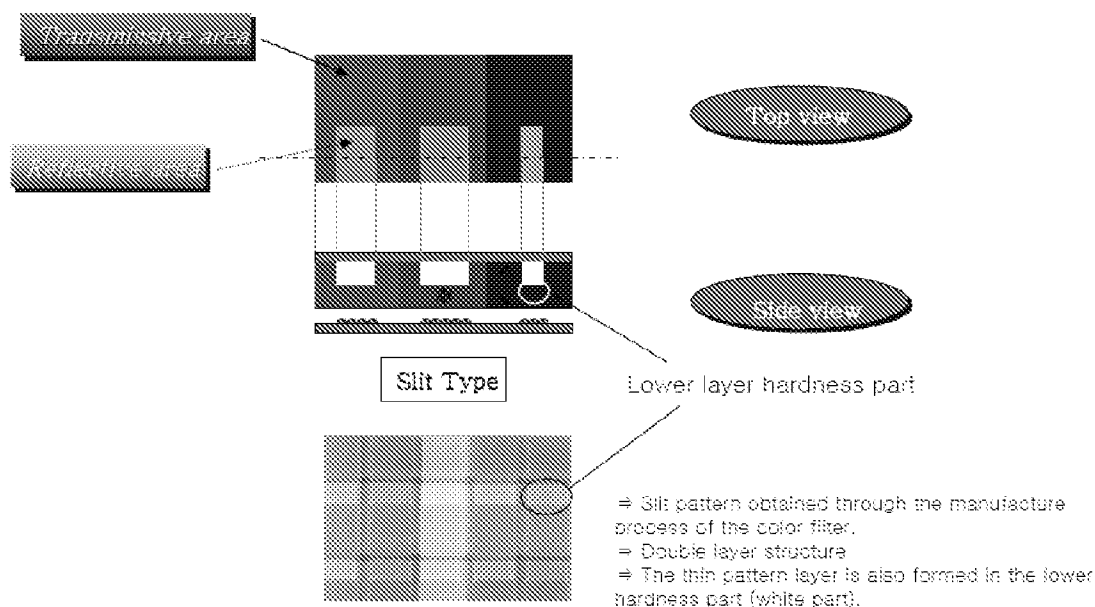


The pattern is formed in the exposure energy of 50mj/cm<sup>2</sup> or less.



The pattern is not formed in the total ranges due to an excess lower layer hardness.

## Pattern formation using Type 2 (the present invention)



## Color Filter

Sakurai is directed to a radiation sensitive composition containing a specific pigment. However, as the Examiner has admitted in the Action (page 7) that Sakurai fails to disclose the specifically claimed compound, i.e., the *0.1 to 2wt% of 3-acryloxypropyltrimethoxysilane as a lower layer silane hardener*, as recited in Claims 1 and 16.

Regarding Ishibashi, Applicants submit that Ishibashi is disqualified as a prior art under 35 U.S.C. § 103(a) for the reasons as follows: As to the Ishibashi reference, the U.S. patent application was filed on June 4, 2003 and published on March 11, 2004. In contrast, the priority date of this application is October 4, 2002 (Korean Patent Application No. 10-2002-0060500), which is prior to the U.S. filing date of the Ishibashi reference. For the support of this argument, a certified English translation of the originally-filed Korean Patent Application (10-2002-0060500, filed on October 4, 2002), from which priority is claimed, is being submitted along with this paper.

Tsuchiya is directed to a process for the preparation of a film-forming resin composition. Tsuchiya discloses 2 to 60 wt% of silane compound including acryloxypropyltrimethoxysilane (line 63 on column 2 through line 29 on column 3 and lines 1-15 on column 5). However, Tsuchiya fails to teach or suggest the *0.1 to 2wt% of 3-acryloxypropyltrimethoxysilane as a lower layer silane hardener*. Further, Tsuchiya uses the silane compound merely in order to increase the hardness of resin composition, but **not** as a lower layer hardener to cause a difference in the hardness between the upper layer part and the lower layer part. Furthermore, Tsuchiya shows that less than 2wt% of the silane compound leads to undesirable results in terms of Tsuchiya's purposes (lines 8-14 on column 3). Accordingly, it is submitted that Tsuchiya provides no teaching or suggestion to those of skill in the art in attempt to combine Tsuchiya with Sakurai to obtain the claimed limitation, in particular, the *0.1 to 2wt% of 3-acryloxypropyltrimethoxysilane as a lower layer silane hardener* of the claimed invention.

Applicants respectfully submit that Tsuchiya, either alone or in combination with Sakurai, fails to teach or suggest at least the *0.1 to 2wt% of 3-acryloxypropyltrimethoxysilane as a lower layer silane hardener*, as recited in Claims 1 and 16.

It is therefore submitted that neither Sakurai nor Tsuchiya, either alone or in combination, teaches or suggests the subject matter claimed in Claims 1 and 16, and thus *no suggestion or motivation* exists in the cited references. Accordingly, *prime facie* obviousness does not exist regarding the subject matter claimed in Claims 1 and 16 with respect to the cited references. Applicants respectfully submit that Claims 1 and 16 are allowable over Sakurai and Tsuchiya.

Claims 2-10 are also believed to be allowable, by virtue of their direct or indirect dependency from Claim 1.

Applicants respectfully request the Examiner to review these submissions and withdraw the rejection on Claims 1-10 and 16 under 35 U.S.C. §103(a).

**Conclusion**

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Reconsideration and subsequent allowance of this application are courteously requested.

If there are any charges due with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

The Examiner is invited to contact Applicants' Attorneys at the below-listed telephone number with any questions or comments regarding this Response or otherwise concerning the present application.

Respectfully submitted,

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